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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/281,421	03/30/1999	GURUDUTH SOMASEKHARA BANAVAR	YO998-525	7217

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EXAMINER

HO, CHUONG T

ART UNIT	PAPER NUMBER
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2664

DATE MAILED: 02/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/281,421

Applicant(s)

BANAVAR ET AL.

Examiner

Chuong Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15, 24-38 and 47-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 24-38, 47-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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1. The amendment "C" filed 11/17/03 have been entered and made of record.
2. Applicant's amendment "C" filed 11/17/03 have been fully considered but they are not persuasive.

As per to Applicant's argument, the Applicant's argue in substance the following:
see page 12, lines 26-28, page 13, lines 1-2, lines 7-8, lines 14-16, page 14, lines 14-15,
Applicant alleged that "There is simply no discussion in Marco of router or link failure per se,
nor of a resilient routing technique for a network which routes a message without loss of the
message, notwithstanding router or link failure".

The Applicant's argument is not persuasive.

Marco (U.S. Patent No. 6,266,337 B1) teach a resilient routing technique for a network which
routes a message without loss of the message (see figure 1, retransmission eliminator [routers] 36
A, 36 B, see col. 3, lines 55-60, the retransmission eliminator 36 B on the local network side of
the hop then retrieves (packet cache) and send the actual packet to the destination computer 20.
Thus, the retransmission eliminators 36 A, and 36 B reduce the traffic on the relatively expensive
link (i.e., the hop) thereby reducing transmission cost) (see figure 2, see col. 4, lines 45-47, the
packet data 60 stored in the data memory 56 (a retransmission eliminator 36) that is addressed by
the pointer associated with the checksum from the hash table 54). Therefore, Marco clearly
discloses a resilient routing technique for a network which routes a message without loss of the
message.

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See page 11, lines 10-12, Applicant alleged that "Without acquiescing to the characterizations of Bracho and Chandra are both silent as to disclosing routing of messages to multiple clients of a network". The Applicant's argument is not persuasive.

In page 8 or page 3 "the Office Action", Bracho and Chandra are both silent to disclosing being resilient to router or link failure within network.

Bracho and Chandra are both to disclosing routing of message to multiple clients of a network (see Chandra (U.S. Patent No. 6,091,724) discloses the system includes means for receiving a message, and means for routing the message to a **subset of clients** of the network, see col. 3, lines 21-23, col. 4, lines 16-18, data within the message is used to traverse a data structure to determine the link or links over which the message is to be forward in order to reach the consumer (**subscribers or clients**) interested in the message)

Bracho discloses the network is a "store and forward" network whose routing is "content - based". In a content based routing system, information is routed based on the content of the information, and not on the address of publishers or **subscribers** [destination computers] in the system. In the described embodiment, information is distributed to many subscribers in parallel (see col. 2, lines 5-10). Therefore, Bracho and Chandra are both to disclosing routing of message to multiple clients of a network

3. Claims 1-15, 24-38, 47-54 are pending.

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-15, 24-38, 47-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandra et al. (U.S. Patent No. 6,091,724) in view of Marco et al. (U.S. Patent No. 6,266,337 B1).

In the claims 1, 24, 47, 48, 49, 50, Chandra et al. discloses the system includes receiving a message; and routing the message to a subset of client of the network. The subset include less than all of the clients of the network, and the routing is irrespective of any destination information that may be within the message (see col. 2, lines 48-52). The system includes a router being adapted to receive a message and being further adapted to determine, based on the data content of the message, zero or more links over which the message is to be sent. The determining is irrespective of any destination information that may be within the message (see col. 3, lines 14-18); comprising:

- ◆ receiving a message; and routing message to one or more clients of network, routing being based on data content of message irrespective of any destination information that may be within message (see col. 7, lines 24-30, col. 2, lines 48-52, col. 3, lines 14-18).

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However, Chandra et al. does not disclose being resilient to router or link failure within network.

Marco et al. discloses a packet retransmission eliminator (36) [router] is installed on opposite ends of a path in network. Each original packet sent over the path is cached on the transmitting and the receiving ends of the path (see Abstract); comprising:

- ◆ being resilient to router (packet retransmission eliminator 26) or link failure within network without loss of message (see col. 2, lines 3-7, col. 3, lines 15-25, lines 47-58).

Given the teaching of Marco , it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the Chandra's system to being resilient to router or link failure within network in order to guarantee the message to be received by all subscriber.

6. In the claims 2, 25, 26, Chandra discloses network comprises a publish/subscribe system supporting content-based subscription, one or more clients comprise subscribers, and wherein routing comprises delivering message to all subscribers requesting a uniform delivery quality of service or if unable to deliver message to all of subscribers requesting uniform delivery, delivering message to none of subscribers requesting uniform delivery (see col. 7, lines 25-30).

7. In the claims 3, 27, Marco et al. discloses receiving a message; logging the message to persistent storage within the routing network; and after logging, delivering message to one or more clients of network, wherein logging to persistent storage prior to delivering of message to one or more clients of network (see col. 2, lines 48-52, col. 3, lines 14-18).

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8. In the claims 4, 28, Marco et al. discloses logging message at least one logging node within network before delivering message to one or more clients of network, logging comprising storing message in persistent storage (see col. 2, lines 48-52, col. 3, lines 14-18).

9. In the claims 5, 29, Marco et al. discloses subsequent to logging of message, sending a logging acknowledgment to at least one router of network routing message, upon receipt of logging acknowledgment at least one router, delivering message to a client thereof, client requiring delivering and comprising one client of one or more clients (see col. 2, lines 48-52, col. 3, lines 14-18).

10. In the claims 6, 30, Marco et al. discloses buffering message at least one router of network routing message, buffering occurring prior to storing of message at persistent storage and when passing message through at least one router to at least one logging node (see col. 2, lines 48-52, col. 3, lines 14-18).

11. In the claims 7, 31, Marco et al. discloses a plurality of routers (retransmission eliminators) coupled together, one of routers (retransmission eliminators) comprising logging node having persistent storage (data caches) associated therewith, logging comprising employing logging node having persistent storage associated therewith to store message and to thereafter send logging acknowledgment back to each router of network responsible for routing message (see col. 2, lines 48-52, col. 3, lines 14-18).

12. In the claims 8, 32, Marco et al. discloses network comprises a spanning tree and wherein method further comprises providing a logging node within spanning tree for logging message to

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persistent storage during routing of message to one or more client of network (see col. 2, lines 48-52, col. 3, lines 14-18).

13. In the claims 9, 33, Marco et al. discloses logging of message to persistent storage to ensure a delivery quality of service of message to one or more clients of network notwithstanding failure of one or more routers or links within network (see col. 2, lines 48-52, col. 3, lines 14-18).

14. In the claims 10, 34, Marco et al. discloses detecting failure of a router within tree before completing routing of message to one or more clients of network, reconfiguring tree to replace failed router with a new router, and automatically generating a request for retransmission of message (see col. 2, lines 48-52, col. 3, lines 14-18).

15. In the claims 11, 35, Marco discloses logging message within persistent storage of network and issuing a logging acknowledgment confirming storage of message to at least one router of tree through which message is routed to one or more clients (see col. 2, lines 48-52, col. 3, lines 14-18).

16. In the claims 12, 36, 37, Marco et al. discloses automatically generating request for retransmission of message occurs if new router detects from one or more of its child routers a logging number associated with message, logging number having been received in logging acknowledgment confirming storage of message (see col. 2, lines 48-52, col. 3, lines 14-18).

17. In the claims 13, 38, Marco et al. discloses automatically informing a sender of message when the message has been lost within the network to allow the sender to retransmit message for

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routing to one or more clients of network so that message is delivered at least once to one or more clients (see col. 2, lines 48-52, col. 3, lines 14-18).

18. In the claim 14, Marco et al. discloses automatically informing a sender of message when the message has not been received by the network to allow the sender to retransmit message to the network for routing to one or more clients of network so that message is delivered at least once to one or more clients (see col. 2, lines 48-52, col. 3, lines 14-18).

19. In the claim 15, Marco et al. discloses logging message at least one logging node within network before delivering message to one or more client of network, storing message into persistent storage, and wherein method further comprises subsequent to logging of message, sending a logging acknowledgment to at least one router of network routing message, and upon receipt of logging acknowledgment at least one router of network routing message, looking up routing information for message from a message table maintained at least one router, then sending logging acknowledgement across network using looked up routing information, and thereafter deleting routing information from message table (see col. 2, lines 48-52, col. 3, lines 14-18).

20. In the claims 51-54, Marco discloses routing of message to multiple clients of network is resilient to router failure within network without loss of message (see col. 2, lines 48-52, col. 3, lines 14-18).

21. Claims 1-15, 24-38, 47-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bracho (U.S. Patent No. 6,021,443) in view of Marco (U.S. Patent 6,266,337 B1).

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In the claims 1, 24, 47, 48, 49, 50, Bracho et al. discloses the network is a “store and forward” network whose routing is “content-based”. In a content-based routing system, information is routed based on the content of the information, and not on the address of publisher (source) or subscribers (destination) in the system (see col. 2, lines 5-9); comprising:

- ◆ receiving a message; and routing message to one or more clients of network, routing being based on data content of message irrespective of any destination information that may be within message (see col.2, lines 5-9, col. 10, lines 18-67).

However, Bracho et al. does not disclose being resilient to router or link failure within network.

Marco et al. discloses a packet retransmission eliminator (36) [router] is installed on opposite ends of a path in network. Each original packet sent over the path is cached on the transmitting and the receiving ends of the path (see Abstract); comprising:

- ◆ being resilient to router (packet retransmission eliminator 26) or link failure within network without loss of message (see col. 2, lines 3-7, col. 3, lines 15-25, lines 47-58).

Given the teaching of Marco , it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Bracho to being resilient to router or link failure within network in order to guarantee the message to be received by all subscriber.

22. In the claims 2, 25, 26, Bracho et al. discloses network comprises a publish/subscribe system supporting content-based subscription, one or more clients comprise subscribers, and wherein routing comprises delivering message to all subscribers requesting a uniform delivery

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quality of service or if unable to deliver message to all of subscribers requesting uniform delivery, delivering message to none of subscribers requesting uniform delivery (see col. 2, lines 5-9, col. 10, lines 18-67).

23. In the claims 3, 27, Marco et al. discloses receiving a message; logging the message to persistent storage within the routing network; and after logging, delivering message to one or more clients of network, wherein logging to persistent storage prior to delivering of message to one or more clients of network (see col. 2, lines 48-52, col. 3, lines 14-18).

24. In the claims 4, 28, Marco et al. discloses logging message at least one logging node within network before delivering message to one or more clients of network, logging comprising storing message in persistent storage (see col. 2, lines 48-52, col. 3, lines 14-18).

25. In the claims 5, 29, Marco et al. discloses subsequent to logging of message, sending a logging acknowledgment to at least one router of network routing message, upon receipt of logging acknowledgment at least one router, delivering message to a client thereof, client requiring delivering and comprising one client of one or more clients (see col. 2, lines 48-52, col. 3, lines 14-18).

26. In the claims 6, 30, Marco et al. discloses buffering message at least one router of network routing message, buffering occurring prior to storing of message at persistent storage and when passing message through at least one router to at least one logging node (see col. 2, lines 48-52, col. 3, lines 14-18).

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27. In the claims 7, 31, Marco et al. discloses a plurality of routers (retransmission eliminators) coupled together, one of routers (retransmission eliminators) comprising logging node having persistent storage (data caches) associated therewith, logging comprising employing logging node having persistent storage associated therewith to store message and to thereafter send logging acknowledgment back to each router of network responsible for routing message (see col. 2, lines 48-52, col. 3, lines 14-18).

28. In the claims 8, 32, Marco et al. discloses network comprises a spanning tree and wherein method further comprises providing a logging node within spanning tree for logging message to persistent storage during routing of message to one or more client of network (see col. 2, lines 48-52, col. 3, lines 14-18).

29. In the claims 9, 33, Marco et al. discloses logging of message to persistent storage to ensure a delivery quality of service of message to one or more clients of network notwithstanding failure of one or more routers or links within network (see col. 2, lines 48-52, col. 3, lines 14-18).

30. In the claims 10, 34, Marco et al. discloses detecting failure of a router within tree before completing routing of message to one or more clients of network, reconfiguring tree to replace failed router with a new router, and automatically generating a request for retransmission of message (see col. 2, lines 48-52, col. 3, lines 14-18).

31. In the claims 11, 35, Marco discloses logging message within persistent storage of network and issuing a logging acknowledgment confirming storage of message to at least one router of

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tree through which message is routed to one or more clients (see col. 2, lines 48-52, col. 3, lines 14-18).

32. In the claims 12, 36, 37, Marco et al. discloses automatically generating request for retransmission of message occurs if new router detects from one or more of its child routers a logging number associated with message, logging number having been received in logging acknowledgment confirming storage of message (see col. 2, lines 48-52, col. 3, lines 14-18).

33. In the claims 13, 38, Marco et al. discloses automatically informing a sender of message when the message has been lost within the network to allow the sender to retransmit message for routing to one or more clients of network so that message is delivered at least once to one or more clients (see col. 2, lines 48-52, col. 3, lines 14-18).

34. In the claim 14, Marco et al. discloses automatically informing a sender of message when the message has not been received by the network to allow the sender to retransmit message to the network for routing to one or more clients of network so that message is delivered at least once to one or more clients (see col. 2, lines 48-52, col. 3, lines 14-18).

35. In the claim 15, Marco et al. discloses logging message at least one logging node within network before delivering message to one or more client of network, storing message into persistent storage, and wherein method further comprises subsequent to logging of message, sending a logging acknowledgment to at least one router of network routing message, and upon receipt of logging acknowledgment at least one router of network routing message, looking up routing information for message from a message table maintained at least one router, then

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sending logging acknowledgement across network using looked up routing information, and thereafter deleting routing information from message table (see col. 2, lines 48-52, col. 3, lines 14-18).

36. In the claims 51-54, Marco discloses routing of message ot multiple clients of network is resilient to router failure within network without loss of message (see col. 2, lines 48-52, col. 3, lines 14-18).

37. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Conclusion

38. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong Ho whose telephone number is (703)306-4529. The examiner can normally be reached on Monday-Friday from 9am to 3pm.

39. Any inquiry of a general nature or relating to the status of this application or proceeding should be direct to the group receptionist whose telephone number is (703) 305-3900.

CH

Date 01-24-04



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